

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Toru WADA et al.

Serial No.: Not yet assigned

Filing Date: April 5, 2004

For: PHOTSENSITIVE RESIN LAMINATE

Examiner: Not yet assigned

Group Art Unit: Not yet assigned

PETITION TO MAKE SPECIAL UNDER 37 CFR 1.102

Commissioner for Patents
Alexandria, VA 22313-1450

Sir:

Applicants submit for consideration this Petition to Make Special under 37 CFR 1.102, and hereby request an accelerated examination of this application. Applicants include herewith all items stated in MPEP section 708.02, subsection VIII, **Special Examining Procedure for Certain New Applications - Accelerated Examination.**

(A) Applicants submit this petition and the fee set forth in 37 CFR 1.17(i).

(B) Applicants include a preliminary amendment with this petition. Following this amendment, all pending claims 18-31 are all directed to a single invention.

(C) A copy of a European Search Report for a counterpart international application is enclosed. This search report satisfies the requirement for a pre-examination search.

(D) A copy of the documents cited the European search report are included with an Information Disclosure Statement (IDS) that accompanies this petition. In addition, the IDS includes copies of United States Patent No. 6,238,837 and International Publication WO 94/03838. Applicants believe these two references along with the four references cited in the

04/07/2004 EHAILE1 00000042 031952 10816914
02 FC:1460 130.00 DA

European Search report are the references most closely related to the subject matter encompassed by the claims in this application.

(E) Applicants submit that the reference cited in the European Search Report and found by Applicants' have been reviewed in light of Applicants' invention. A discussion of the references in light of the invention as claimed follows:

Applicants Claimed Invention

The present invention relates to a photosensitive resin laminate. As stated independent claim 18, the claimed photosensitive resin laminate includes, "a support, a photosensitive resin layer, an IR ablation layer and a cover film, wherein the IR ablation layer comprises a layer consisting essentially of an IR absorbent metal, the IR absorbent metal layer is disposed in contact with the photosensitive resin layer and a non-IR sensitive polymer resin layer is formed between the IR absorbent metal layer and the cover film."

The scattering of light in the main exposure can be controlled by the claimed IR ablation layer. In addition, the high strength of the claimed IR ablation layer prevents breakage and flaws in the layer caused when a cover film is peeled off. Accordingly, the claimed photosensitive resin laminate can be used to produce a high precision mask that can be used to produce a printing plate that provides high quality printed images with fine image reproducibility. Moreover, the laminate causes less staining of the developer during development than typical laminates allowing successive development of plural plates.

1. EP 1 146 392 A1

EP 1 146 392 A1 (hereinafter the '392 reference) discloses an imaging material comprising, a first peelable support (1), an image recording layer (2) (corresponding to the IR ablation layer of the present invention) and an adhesive layer (3) (and optionally a second

peelable support (4)) that is laminated onto a UV-sensitive material comprising a support (7), a UV-sensitive layer (6) (corresponding to the photosensitive resin layer of the present invention) and optionally a protective layer (5) (see claim 1, paragraph 0018 and Fig. 1).

In a preferred embodiment, an image recording layer (2) (corresponding to the IR absorbent metal layer of the present invention) is a thin metallic layer. As the metal for the image recording layer (2), metals such as Al, Zn, Cu, a mixture of at least two thereof, alloys and metal oxides are mentioned (see paragraph 0024).

The flexographic printing plate precursor described in the '392 reference precursor has a structure comprising the adhesive layer (3) (and optionally the protective layer (5)) interposed between the image recording layer (2) and the UV-sensitive layer (6). Accordingly, the image recording layer (2), which corresponds to the IR absorbent metal layer claimed by applicants, is not disposed in contact with the photosensitive resin layer as claimed.

The addition of the adhesive layer and optionally the protective layer between the IR absorbent metal layer makes it difficult to control the scattering of light during the main exposure during the printing process. In addition, the IR ablation layer can become brittle leading to breakage and flaws of the image recording layer. As a result, a printing plate that provides high quality printing images cannot be obtained.

Moreover, the '392 reference fails to disclose a non-IR-sensitive polymer resin layer that is formed between the layer made from an IR absorbent metal alone and a cover film as claimed.

2. United States Patent No. 6,245,486

United States Patent No. 6,245,486 (hereinafter the '486 reference) discloses a flexographic plate comprising a substrate (corresponding to the support of the present invention),

a photosensitive layer and an infrared laser ablatable mask layer (see column 2, line 44 – column 3, line 15). The above-mentioned infrared laser ablatable mask layer can be a single layer or it can include two or more sublayers. As such layer or sublayer, for example, a thin layer of metal (including metal alloy) is mentioned (see column 5, lines 1 - 36).

The ‘486 reference also states that a “very thin transparent top layer” (e.g., polymer resin layer) may be formed on the infrared laser ablatable mask layer (see column 4, lines 55 - 67). However, this “very thin transparent top layer” is removed during infrared laser ablation since the layer is “capable of being ablated off,” or IR-sensitive. Accordingly, the ‘486 reference does not disclose that the “very thin transparent top layer” is a non-IR-sensitive polymer resin layer as claimed by applicants.

The non-IR-sensitive polymer layer protects the infrared laser ablatable mask layer after infrared ablation to main exposure. The flexographic plate described in the ‘486 reference does not describe such layer capable of protecting an infrared laser ablatable mask layer from after infrared laser ablation to main exposure.

3. United States Patent No. 4,132,168

United States Patent No. 4,132,168 (hereinafter the ‘168 reference) describes a planographic printing plate which includes a support layer, a first layer which is sensitive to ultraviolet light and is overlying the support layer (corresponding to the photosensitive resin layer of the present invention), and a second layer overlying and in contact with the first layer (this corresponds to the IR ablation layer of the present invention). The second layer, which corresponds to the IR ablation layer, is opaque to ultraviolet light and is capable of being removed or rendered transparent to ultraviolet light by non-actinic laser radiation (see claim 1, etc.).

However, the '168 reference does not disclose or suggest forming a non-IR-sensitive polymer resin layer on the above-mentioned second layer as claimed by applicants. As stated above, this claimed layer protects the infrared laser ablatable mask layer after infrared ablation to main exposure.

In addition, the '168 reference does not disclose the claimed cover film. The claimed cover film can be used as a support for the deposition of the IR absorbent metal layer. The photosensitive resin laminate can then be formed by, for example, applying an aluminum layer onto a cover film by vacuum deposition and the like to give a laminate, and applying the laminate on a photosensitive resin layer. Such vapor deposition technique can be performed on a roll-to-roll process.

In the '168 reference, the aluminum layer (the second layer) is directly deposited on an ultraviolet sensitive coating (first layer) (see column 2, lines 61 – 62). Such a vapor deposition is generally performed in a batch process. Accordingly, the planographic printing plate described in the '168 reference cannot easily be industrially produced.

Further, the cover film protects the IR ablation layer during storage and handling. Since the '168 reference does not disclose the claimed cover film, the '168 reference does not disclose or suggest the claimed invention for this additional reason.

4. WO 01/63364

WO 01/63364 (hereinafter the '364 reference) discloses a laser imaged printing plate including a backing layer (corresponding to the support of the present invention), a photocurable layer (corresponding to the photosensitive resin layer of the present invention) and a multilayer photoablative slip film (corresponding to the IR ablation layer of the present invention) (see Abstract, claim 1, etc.).

The multilayer photoablative slip film, which corresponds to the IR ablation layer, includes at least two layers. One of the layers includes a self-oxidizing binder, a film-forming polymer and/or a low molecular weight plasticizer, and a UV absorber. Another layer of the multilayer photoablative slip film includes a self-oxidizing binder, a film-forming polymer and/or a low molecular weight plasticizer, and an IR absorber (see Abstract and page 9, lines 19 - 28). The '364 reference describes the UV absorber as benzophenone derivatives and strongly absorbing dyes (see page 7, line 16). The '364 reference describes the IR absorber as an IR-absorbing dye (see page 8, line 25).

The '364 reference does not disclose an IR ablation layer that includes a layer consisting essentially of an IR absorbent metal as claimed. Further, the '364 also fails to disclose disposing an IR absorbent metal layer in contact with a photosensitive resin layer as claimed. Finally, the '364 reference fails to disclose or suggest a non-IR-sensitive polymer resin layer that is formed between the cover sheet (to be removed before photoablation) and a multilayer photoablative slip film as claimed. Accordingly, the '364 reference does not disclose or suggest the claimed invention.

5. United States Patent No. 6,238,837

United States Patent No. 6,238,837 (hereinafter the '837 reference) discloses a photosensitive element including a support, at least one layer of a photopolymerizable material on the support (corresponding to the photosensitive resin layer of the present invention), at least one infrared ablation layer and a cover sheet, wherein the infrared ablation layer is in direct contact with at least one layer of a photopolymerizable material (see claim 1, etc.).

The infrared ablation layer described in the '837 reference includes (i) at least one infrared absorbing material; (ii) a radiation opaque material; and (iii) at least one binder (see

column 6, lines 26 - 33). As examples of the infrared absorbing materials, the '837 reference lists dark inorganic pigments such as copper chromite, chromium oxides and cobalt chrome aluminate (see column 6, lines 59 – 62) and metals such as aluminum, copper and zinc, alloys of bismuth, indium and copper (see column 7, lines 33 – 34). Further the '837 reference states that these dark inorganic pigments, metals and alloys generally function as both an infrared absorbing material and a radiation opaque material (column 7, lines 24 – 25 and 29 – 31). Accordingly, the '837 reference describes an infrared ablation layer made from dark inorganic pigments, metals or alloys (IR absorbent metal in the present invention) and a binder.

Applicants claim an IR ablation layer that comprises a layer consisting essentially of an IR absorbent metal. The '837 reference does not disclose such a layer since the metal containing layer disclosed in the '837 reference includes a binder as an essential component.

Further, the '837 reference fails to disclose or suggest the claimed non-IR-sensitive polymer resin layer formed between the cover sheet (to be removed before infrared ablation) and an infrared ablation layer as claimed.

6. WO 94/03838:

WO 94/03838 (hereinafter the '838 reference) discloses a photosensitive printing element that includes a support, a photopolymerizable layer (corresponding to the photosensitive resin layer of the present invention), at least one barrier layer and at least one layer of infrared radiation sensitive material (corresponding to the IR ablation layer of the present invention) (see claim 1, etc.).

The barrier layer in the '838 reference is interposed between the photopolymerizable layer and the layer of infrared radiation sensitive material (see page 7, lines 12 - 14). Accordingly, the infrared radiation sensitive material (corresponding to the IR ablation layer of

the present invention) is not disposed in contact with the photopolymerizable layer (corresponding to the photosensitive resin layer of the present invention) as claimed by applicants.

In addition, the '838 reference does not disclose or suggest the claimed non-IR-sensitive polymer resin layer formed between a cover sheet (to be removed before infrared ablation) and the IR-absorbent metal layer. Further, the photosensitive printing element described in the '838 reference does not include any layer for protecting the layer of infrared radiation sensitive material after infrared ablation to main exposure.

Conclusion

As described above, the photosensitive resin laminate of the present invention is not disclosed or suggested by any of the references listed above either alone or in combination. Specifically, the above listed references fail to disclose or suggest a layer consisting essentially of an IR absorbent metal that is disposed in contact with the photosensitive resin layer and a non-IR sensitive polymer resin layer that is formed between the IR absorbent metal layer and a cover film.

Applicants respectfully request that this Petition to Make Special be granted, and that examination of this application will proceed under the special examination procedure.

In the event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 358362010601. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Respectfully submitted,

Dated: April 5, 2004

By:

 #28,615

Jonathan Bockman

Registration No. 45,640P

1650 Tysons Boulevard

Suite 300

McLean, Virginia 22102

Telephone: (703) 760-7769

Facsimile: (703) 760-7777